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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,179	03/30/2006	Toshihiro Iwakuma	287634US2PCT	4095

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EXAMINER	
HANLEY, BRITT D	

ART UNIT	PAPER NUMBER
2889	

NOTIFICATION DATE	DELIVERY MODE
09/15/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/574,179	IWAKUMA ET AL.	
	Examiner	Art Unit	
	BRITT D. HANLEY	2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 6-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/13/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

01 Amendment filed on 06/04/2009 has been entered and noted by Examiner. Claims 4 and 5 are cancelled in the application, and claims 1-3, and 6-11 are pending.

Claim Rejections - 35 USC § 103

02 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

03 The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

04 Claims 1-3 and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant cited Tokito et al. (High-efficiency white phosphorescent organic light-emitting devices with greenish-blue and red-emitting layers) in view of Zugang *et al.* (White organic light-emitting diodes emitting from both hole and electron transport layers).

05 Regarding claim 1, Tokito *et al.* disclose an organic electroluminescent device comprising at least an anode (ITO, Figure 1), a first emitting layer ($(CF_3ppy)_2Ir(pic)$:CDBP, Figure 1), a hole barrier layer (BAlq, Figure 1), a second emitting layer ($(btp)_2Ir(acac)$:CDBP, Figure 1) and a cathode (LiF, Figure 1) in this order (Figure 1); wherein the first emitting layer and the second emitting layer both comprise a hole transporting material (CDBP). Tokito *et al.* do not explicitly appear to disclose a difference in affinity level between the hole barrier layer and the first emitting layer is 0.2 eV or less or a difference in affinity level between the hole barrier layer and the second emitting layer is 0.2 eV or less. In the same field of OLEDs, Zugang *et al.* disclose a first and second emitting layer separated by a hole blocking layer (Figure 1). The hole blocking layer is PBD and is used because it is a good hole blocking material that allows emission from both the first and second emitting layers (see section 3.5). Since the resulting device will have the same materials for the emitting and hole blocking layers, the claimed material characterizes are obvious and inherent over the device. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art having the references of Tokito *et al.* and Zugang *et al.* to modify the hole blocking material of Tokito *et al.* to include the hole blocking material of Zugang *et al.* in order to increase the hole blocking properties of the hold blocking layer (a high I_p results in better hole blocking characteristics).

06 Regarding claim 2, the combination of Tokito *et al.* and Zugang *et al.* disclose the organic electroluminescent device according to claim 1, wherein the first emitting layer and the second emitting layer both have a hole mobility of 10-5 cm.sup.2/Vs or more (since Tokito *et al.* disclose the same materials for the emitting layers as the Applicant - see at least the first schematic structure under paragraph 48 and paragraph 54 of the PGPub - CDBP as a host material and the same dopant - see paragraph 50 and 55 - the emitting layers of Tokito et al. will have the same material properties as claim above).

07 Regarding claim 3, the combination of Tokito *et al.* and Zugang *et al.* disclose the organic electroluminescent device according to claim 1, wherein the ionization potential of the hole barrier layer (PBD) is higher than the ionization potential of the first emitting layer by 0.2 eV or more (see table 1 of instant application). The motivation to combine is the same as in claim 1.

08 Regarding claim 6, Tokito *et al.* disclose the organic electroluminescent device according to claim 1, wherein the first emitting layer is a blue emitting layer (see at least abstract and Figure 1).

09 Regarding claim 7, Tokito *et al.* disclose the organic electroluminescent device according to claim 1, wherein the second emitting layer is a yellow-to-red emitting layer (see at least abstract and Figure 1).

10 Regarding claims 8 and 9, the Tokito *et al.* and Zugang *et al.* disclose the limitations of claim 1. The combination does not explicitly appear to disclose that the emitting layer next to the anode is a yellow-to-red emitter and the emitter next to the cathode is a blue emitting layer. Tokito *et al.* disclose that the blue emitting layer is next to the anode and that the yellow-to-red emitting layer is next to the cathode. However, at the time the invention was made, it would have been obvious to a person having ordinary skill in the art having the references of Tokito *et al.* and Zugang *et al.* to modify the location of the emitting layers as it is a matter of ordinary skill in the art. Further, since the hole blocking layer allows both emitting layers to emit independently, the device will function if the two emitting layers are rearranged.

11 Regarding claim 10, Tokito *et al.* disclose the organic electroluminescent device according to claim 1 that emits white light (see abstract) and last paragraph of page 2461).

12 Regarding claim 11, Tokito *et al.* disclose a display-comprising the organic electroluminescent device according to claim 1 (see first paragraph of page 2459).

Response to Arguments

13 Applicant's arguments filed 06/04/2009 have been fully considered but they are not persuasive. Applicant claims that the different in affinity levels of CDBP and PBD is greater than 0.2 eV. However, in the instant application, table 1 clearly shows that the affinity level of CDBP is 2.9 eV and not 2.5 eV as Applicant argues in the remarks. Therefore, the difference in affinity is 0.2 eV or less.

14 Further, Applicant points to a reference that teaches the affinity level of CBP as 2.5 eV and says that the emitting layer of Tokito et al. also has an affinity level of 2.5 eV. This is incorrect. Tokito *et al.* disclose an emitting layer of CDBP (not CBP). Applicant's reference is silent regarding CDBP.

Conclusion

15 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

16 A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Britt Hanley whose telephone number is (571) 270-3042. The examiner can normally be reached on Monday - Thursday, 6:30a-5:00p ET.

18 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571)272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see *http://pair-direct.uspto.gov*. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Britt Hanley/ Examiner, Art Unit 2889	/Toan Ton/ Supervisory Patent Examiner, Art Unit 2889